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DECEMBER 7.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-seven members present.

Quercus heterophylla.—Referring to former remarks on this oak, Mr. THOMAS MEEHAN exhibited some leaves almost entire, and some with lobes like the Bartram oak, which he had recently gathered from a tree of the water oak in Mississippi. There were on the same tree, but beyond reach, leaves resembling in outline those of the willow oak. As indicated by Mr. Burke in regard to the *Quercus heterophylla* of New Jersey, and which the evidence already adduced showed were but *Quercus aquatica*, this last species in its home in Mississippi was readily distinguished by the habit of the tree. It had a tendency to branch low, forming a somewhat spreading head, just as the white oak does, in which there is little distinction between the main stem and the leading branches ultimately, while the *Quercus Phellos* had a more slender twiggy habit, and the distinction between the main trunk and the branches were carried forward to old age.

Sabal Palmetto.—Mr. Meehan remarked that this palm was not confined to sandy land near the coast, but extended along the whole line of the Big Black River in Mississippi, at least two hundred and fifty miles above New Orleans, where it was found in immense quantities in swamps. It was only seen in these places, and often entirely in water, with, in some cases, two or three feet of the trunk out of water. It must also be much hardier than people supposed, as at Grenada, a little below which he had seen the palm growing, the thermometer sometimes falls to 10°.

Swamp trees.—Mr. M. further remarked that some years ago he had called attention to the singular fact, that what we know as swamp trees did not grow in swamps because they preferred these wet places, but, as if nature had so ordained in order to clothe these wastes, the seeds will only sprout in wet places or very moist soil. When such trees find themselves in dryer situations they thrive much better than in the wet places, where only the seeds will grow. This is further illustrated by the *Magnolia grandiflora* in Mississippi. The tree is found as a general thing on low bottoms, or along the line of water-courses favorable to the germination of the seeds. Here the best trees seldom exceed from thirty to fifty feet high. The loose soil of Mississippi is, however, continually changing; and a swamp to-day may be high and dry ground a quarter of a century hence. So the *Magnolia grandiflora* often found itself in quite comfortable quarters, and in such cases grew as tall as the loftiest trees—say from fifty to seventy feet

high. This desire to get out of the water if possible, he had before suggested as the cause of those peculiar productions of the roots of cypress known as cypress knees. Whenever the tree found itself in land covered by water these knees were thrown up above the surface, till the water had the appearance of being covered by flocks of huge water birds; but when the trees were on land from which the water is now drained away, the knees did not appear.

The *Florida moss*, *Tillandsia usneoides*.—In regard to this plant, Mr. Meehan thought little was known of its history or development. Some even supposed it to be a parasite. He had been able to ascertain that the seed germinated when it found itself in the hollow crotch of a tree in which vegetable mould had collected. From this young plant hair-like stolons or runners proceeded with buds at every few inches, which buds in time pushed forth into the gray green leaves and stems popularly known as moss. These branches, as they hung, did not send out the hair-like runners, but if they became detached from the original stock and on another branch would do so. It appeared, however, that propagation from seed was extremely rare—the chief increase being by pieces of the branches blown by storms, or carried by other agencies to other locations. Unless already on tall trees so as to be blown down, it was difficult for the “moss” to travel up the tree. As in the case of the grape-vines on the tall trees of this region, it is carried up as the trees grow. On large old cypress trees, it is probable the whole colony is formed of a few original plants of many years of age. Trees which grow rapidly and had chiefly erect branches, such as willows, on which the “moss” would not hang easily, were chiefly free from it; the horizontal branches of the cypress were very favorable to the attachment, and the somewhat pendulous branchlets of the live oak well calculated for entanglement with the loose flowing masses of the *Tillandsia*, and hence it was usually abundant on these trees. That it was merely an epiphyte and not a parasite was clear from its growing as well on telegraph wires as on trees. For a long distance above New Orleans it might be seen attached to the wires, on which it had evidently been originally blown from the trees. His attention had been called to this fact by Col. Hillyard, one of the officers of the railroad, who, without any great scientific pretensions, was yet an acute observer, and who had noticed the little patches on the wire getting larger by growth from year to year as well as if growing on trees. This fact, of course, shows the plant to be a mere epiphyte in character.

Notes on the Genus Catillus, Brong.—At the request of T. A. CONRAD, the following note was read:—

The genus *Catillus* was separated from *Inoceramus*, by Brongniart, but the name had been previously given to a fresh-water group, by Humphrey (*Navicula* Lam.). I have described and

figured two species in Vol. II. of the United States Geological Survey of the Territories. I intended that a reference to Brongniart's *Catillus* should accompany my descriptions in the Report, but I find it was omitted, and therefore insert it in the Proceedings. The name *Haploscapa* I propose to substitute for *Catillus*, unless the genus *Volviceramus*, Stol., should include the species. The singular turn of the beak and very unequal valves in *Volviceramus* appear to be the only differences between the two groups, and therefore *Haploscapa* may be retained only as a subgenus. Nothing nearly related to this genus has ever been found either above or below the chalk. If the cartilage was attached to the grooved margin, it must have been external and very large. It no doubt should be included in the family *Aviculidæ*.

On Mineral Localities in North Carolina.—JOSEPH WILLCOX said that he desired to place on record some mineral localities which he had visited among the mountains in N. Carolina.

In Cherokee Co. on the roadside about half-way between Murphy and Valletown, corundum is found well crystallized in kyanite. At the same locality crystals of kyanite, an inch in diameter, occur in quartz. Some of these crystals are almost wholly altered into damourite.

At Hogback Mountain, in Jackson Co., on land of Thomas Johnston, occur the most beautiful specimens of pink corundum, associated with margarite and tourmaline.

In Buncombe Co., on the summit of the ridge between the headwaters of Reems Creek and Bull Creek, large garnets are found in mica slate. In Swannanoa Gap, in the same county, a large outcrop of kyanite occurs, extending several miles in a northeastern course. At several places on this vein corundum is found in the kyanite, sometimes in crystals more than two inches long. One specimen of kyanite found there has corundum attached to it on one side, while the other side is altered into damourite, which still retains the bladed structure of the kyanite.

In Madison Co., on the farm of Mr. Carter, near the Burnsville road, 20 miles from Asheville, a white and pink corundum is found, associated with margarite and chlorite. At this place about 1000 pounds of corundum have been dug up; but it is mixed with spinel so abundantly that it possesses little value for commercial purposes.

In Haywood Co., a vein of white feldspar (probably albite) has recently been dug out, to a depth of a few feet, in the pursuit of mica. This vein, about 5 feet wide, is walled on each side with gneiss rocks, and contains corundum associated with margarite or damourite. Occasionally corundum is found in a matrix of mica in large plates, resembling muscovite. This corundum is blue, and affords beautiful specimens. He did not observe any indication of serpentine rocks in this vicinity.

Crystals of rutile, 5 inches long, in quartz, are found on the farm of Garret Ray, near Burnsville in Yancey Co.

Corundum penetrated with crystals of rutile is found near Bakersville, in Mitchel Co. Crystals of actinolite nearly half an inch broad in talc are found on the farm of Mr. English, near North Loe River in same County.

On the farm of Mr. Alley, in Horse Cove, Jackson Co., decremented crystals of muscovite mica are found; also beryls with highly modified terminations.

On the summit of the South Mountains, 7 miles south of Morganton, in Burke Co., an outcrop of serpentine occurs, where may be found magnetite in chlorite, actinolite, talc, and asbestos. One small specimen of corundum has been found there.

The production of muscovite mica is probably greater in the mountain region of N. Carolina than in any other district in the world; and the supply is chiefly obtained in Mitchel and Yancey Counties.

It is found in veins of feldspar, usually much decomposed, and accompanied sparingly with quartz. The wall rocks of the veins are gneiss and mica slate. The largest specimens of mica are obtained in Wiseman's mine, in Mitchel Co., where one huge mass was found 5 feet long, 3 feet wide, and 2 feet thick. At this mine the rare mineral samarskite occurs.

Occasionally beryls, tourmalines, and garnets, are found in these mica mines.

On the Effect of the Bipedal Position in Man.—Dr. ALLEN made some remarks upon the physical characteristics of man, which result from the assumption of the bipedal position. He contrasted the position of a quadruped standing upon his hind legs, with that of a man in the erect attitude such as that seen in the soldier standing at attention. The most conspicuous of these characteristics were seen in the absence of flexion at the knee-joint, the downward directed nostril, and the sigmoid curve of the suprasacral vertebral column. The flattening of the sternum was a sequence upon the presence of the clavicle, and was of course not dependent upon the erect position. Yet, since a fixed clavicle (at least its mammalian expression) cannot act to advantage in any other than this position, the flattening can be assigned a secondary place in the group of characters.

Dependent upon the erect position—plus the flattening of the sternum—is the deflection of the heart to the left side. Dr. A. spoke at length upon the reasons of this deflection, and claimed for it a result of modification of the foetal proportions of the heart. The typical mammalian act is the foetal heart; the heart of the adult being a specialized form. The mechanism of the deflection is complicated. Entering into its consideration are (1) the fact that the right side of the heart is fixed by the cavæ at its right

border, thus tending to tilt the right ventricle toward the left. (2) The greater weight of the posterior aspect of the heart which throws the posterior wall downward, and the anterior wall upward. (3) The fixation of the left side of the heart, by the pulmonary veins, directly in the median line, while the flattened sternum compels the apex to lie either to one or the other side of the median line. Dr. A. in conclusion divided the characteristics of man into two groups. The first and most important being those the result of evolving from a quadrupedal type a bipedal specialized form; the second, being those belonging to the disposition of special organs, such as the teeth. Within this category may be placed the rudiments of structure, which are better developed in quadrupeds, and which often constitute the "varieties" of human anatomy.

DECEMBER 14.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-nine members present.

DECEMBER 21.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-five members present.

DECEMBER 28.

The President, Dr. RUSCHENBERGER, in the chair.

Fifty members present.

Wm. Stevenson, Jos. R. Roach, H. C. Humphrey, Geo. Wood, and Beulah M. Rhoads were elected members.

The Committee to which it had been referred recommended the following paper to be published.